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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/586,493 06/02/00 LEE

S D-30207-01

EXAMINER

IM22/0727

THOMAS C LAGALY  
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P O BOX 464  
DUNCAN SC 29334

RAGWELL, M

ART UNIT

PAPER NUMBER

1711

DATE MAILED:

07/27/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/586,493

Applicant(s)

LEE ET AL.

Examiner

Melanie D. Bagwell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

1. The rejections based on 35 U.S.C. 102 have been withdrawn based on the applicant's Amendment A. However, the rejections based on 35 U.S.C. 103 have been maintained.

### ***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-5 and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. Claims 1 and 8 have been amended to include foam density limitations and to limit the blowing agent to a physical blowing agent.
4. Sakamoto discloses a polymer blend foam comprising high-pressure low-density polyethylene (HP-LDPE) and high-density polyethylene (HDPE) (col. 3 lines 11-31). In this case, HDPE serves as an ethylene homopolymer having a density of 0.945-0.961 g/cm<sup>3</sup> and a melt flow index of 0.15-20 g/10 minutes (col. 4 lines 2-5). Thus, one would clearly envision choosing a polymer having a melt flow index greater than 10, 12, or 15 g/10 minutes from the indicated range of 0.15-20 g/10 minutes. The products exhibit high expansion ratios for small-diameter foams. Examples show the blend incorporating from 50% (example 3) to ~83% (example 4) by weight of HP-LDPE with 50% to 17% by weight HDPE.
5. To form the foams of the invention, Sakamoto uses a method of blending the polymer components with a chemical blowing agent and extruding the material into

the air to expand the blowing agent and form a foam (col. 1 lines 27-42). However, the examples of the reference do not teach the use of physical blowing agents and does not mention the foam density. In the background section of the reference, Sakamoto teaches that gas blowing processes promote improved expansion ratios (col. 1 lines 40-42), where higher expansion ratios yield improved insulative properties (col. 1 lines 19-26). Therefore, it is the examiner's position that it would have been prima facie obvious to use physical blowing agents in the foams of Sakamoto's invention to improve insulation. Additionally, it would have been prima facie obvious to provide a foam with the applicant's claimed density in the expectancy of optimizing insulative properties.

6. Sakamoto applies as above for a method of foaming by expanding a polymer blend, lacking express mention of forming a foam sheet. Sakamoto's invention is drawn to small-diameter foam tubes (examples indicate 0.7 mm diameters) formed for cable insulation. However, insulative foam sheets are conventionally formed by extrusion processes for applications other than cable wires. Therefore, it is the examiner's position that it would have been prima facie obvious to form thin, insulative foam sheets using the foam process of Sakamoto's teaching to provide insulation for applications other than cable wires.
7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. in view of the applicant's admitted prior art.
8. From a prior Office action:

Sakamoto applies as above for a method of foaming by expanding a polymer blend, lacking express mention of extruding the blend into a region of reduced pressure. The applicant discloses an extrusion method including a step of extruding into a region of reduced pressure as a conventional process for forming LDPE/HDPE foams (p. 7 lines 18-30). Thus, it is the examiner's position that it would have been prima facie obvious to extrude into a region of reduced pressure by conventional teaching to produce a foam with equally high expansion ratio.

### ***Response to Arguments***

9. In response to the applicant's argument that Sakamoto does not teach the applicant's claimed foam density, it is noted that the applicant has not provided sufficient evidence to prove otherwise. Although conclusions have been drawn from data extrapolation based on the Sakamoto reference, sufficient basis has not been provided for such calculation. Specifically, the applicant has not supplied support or derivation for the equations relating expansion ratio to density or volume. Furthermore, the applicant has drawn conclusions from theoretical data. The examiner holds that, because all processing and material conditions have not been taken into account, the theoretical foam densities cannot substitute for actual foam density data.
10. Regarding the applicant's argument that it would not have been obvious to use physical blowing agents in Sakamoto's invention because wire insulation requires higher density foams, it is noted that Sakamoto prefers a high expansion ratio to lower the dielectric constant of the foam (col. 1 lines 19-26). Thus, lower-density foams have better insulative properties. Because Sakamoto teaches foams for insulative purposes and prefers high expansion ratios, it is the examiner's position

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that it would have been prima facie obvious to incorporate physical blowing agents into the compositions of the invention to improve the expansion ratios of the foams, thus improving insulation.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bagwell whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

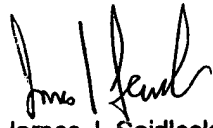
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 872-9309.

mdb  
July 25, 2001



James J. Seidleck  
Supervisory Patent Examiner  
Technology Center 1700